UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,457	03/14/2001	Martin Eugene Leonard	2001P04581US	5207

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Siemens Corporation
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EXAMINER
CHO, HONG SOL

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/809,457	LEONARD, MARTIN EUGENE
	Examiner	Art Unit
	Hong Cho	2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-15* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-15* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *03-14-2001* is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____ .

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Drawings

1.   New corrected drawings are required in this application because elements 12, 14,

and 16 are not labeled in Figure 1 and the label for elements 102a through 102h in

Figure 2 are misspelled. It should be labeled as "transceiver". Applicant is

advised to employ the services of a competent patent draftsperson outside the

Office, as the U.S. Patent and Trademark Office no longer prepares new

drawings. The corrected drawings are required in reply to the Office action to

avoid abandonment of the application. The requirement for corrected drawings

will not be held in abeyance.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b)

that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public
use or on sale in this country, more than one year prior to the date of application for patent in the United
States.

3.   Claims 7-15 are rejected under 35 U.S.C. 102(b) as being unpatentable over

Hasley et al (U.S 4656627), hereinafter referred to as Hasley.

Re claims 7-9, Hasley discloses a packet switching system with a parallel bus

with data buses comprising enough lines to carry a parallel byte of data and a

clock bus that arbitration, control and data transmission take place over separate

paths to provide increased data throughput (*a parallel bus LAN having a plurality*

of data lines and a clock bus for improving bus performance and bandwidth

utilization by implementing bidding arbitration scheme, column 2, lines 32-34;

lines 41-43; column 3, lines 3-12).   Hasley discloses a contention process among

contending ports by sending their priority numbers on arbitration number during

phase one of the clock cycle (*during a portion of a variable length time frame*,

figure 9) and granting data bus access to the port with the highest priority number

(*a bidding arbitration scheme such that only one user can transmit on the bus at*

one time, column 3, lines 23-26).

Re claim 10, Hasley discloses a packet switching system having a plurality of bus

ports with data processor, data device, terminal controller, and terminals

(*providing a plurality of bus ports, each bus port having a configurable hardware*

interface, figure 1).

Re claim 11, Hasley discloses a packet switching system with a parallel bus with

data buses comprising enough lines to carry a parallel byte of data and a clock bus

(*providing a parallel bus LAN having a plurality of data lines and a clock bus*,

figure 1) and ports with data processor, data device, terminal controller, and

terminals (*providing a plurality of bus ports, each bus port having a configurable*

hardware interface, figure 1).

Re claims 12-14, Hasley discloses a contention process among contending ports

by sending their priority numbers on arbitration number during phase one of the

clock cycle (*during a portion of a variable length time frame*, figure 9) and

granting data bus access to the port with the highest priority number (*a bidding arbitration scheme such that only one user can transmit on the bus at one time*, column 3, lines 23-26).

Re claim 15, Hasley discloses increasing data throughput by providing a parallel bus with data buses comprising enough lines to carry a parallel byte of data (*increasing the bandwidth of the LAN by increasing the number of data lines*, column 2, lines 41-43; column 3, lines 10-12).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasley in view of Ben-Michael et al (U.S 6002675), hereinafter referred to as Ben-Michael. .

Re claim 1, Hasley discloses arbitrating access to the data bus with a plurality of ports (figure 1; column 3, lines 4-7), assigning priority number to the contending ports (*assigning each port a unique address which defines a unique priority value*, column 3, lines 16-17), and granting data bus access to the port with the highest port number at the end of contending process (column 3, lines 23-26).

Hasley discloses starting contending process when transmitter receives data from the device (*generating a repeating, variable length frame,* column 4, lines 6-8) served by the port during its assigned phase (*bidding for access to the bus during at least one predefined clock cycle of the frame,* column 4, lines 19-21). Hasley fails to teach explicitly placing the other bidding ports addresses in a queue. However, Ben-Michael discloses Ethernet ports with internal FIFO buffers (*placing the other bidding port addresses in a queue,* column 18, lines 12-14). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the port of Hasley to include a buffer or a queue of Ben-Michael so that Hasley can put other contending ports' priority values into a queue and use them to grant the access to the data bus to the port with the next highest priority number (column 6, lines 16-20).

Re claim 2, Hasley discloses a packet system with a port. Hasley fails to teach explicitly a port with a buffer. However, Ben-Michael discloses a port with internal buffer (*each port maintains a copy of the queue,* column 5, lines 14-15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hasley to include a port with a buffer so that a packet resides in a buffer waiting for the next round of contending stage.

Re claim 3, Hasley discloses starting arbitration process when arbitration line is idle (*bidding is only permitted when the queue is empty,* column 36-38).

For the purpose of examination, "reserving clock cycle for transmission" and "the cycle of the frame" are interpreted by Examiner to mean "transmitting at a given clock cycle or phase".

Re claims 4 and 5, Hasley discloses sending over a data bus the address of the destination port (*at least one cycle is reserved for transmission of destination address*, column 5, lines 10-11) and indicating data bus is currently in use during phase 1 by sending a send enable signal (*at least one cycle is reserved for the port having the destination address to assert a busy signal on the data bus*, column 5, lines 23-26). Hasley discloses sending an end-of-packet signal to indicate the port's entire data packet has been transmitted (column 6, lines 1-5). Hasley fails to teach reserving at least one cycle of the frame for transmitting message length. However, Ben-Michael discloses a control packet with programmable type field that can contain message length information (column 11, lines 8-11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hasley to include packet field with message length to indicate when the port's entire data packet has been transmitted (column 6, lines 1-5).

Re claim 6, Hasley discloses a port applying the address of the destination port to data bus during time t8 (*the port having the destination address asserting the busy signal during the busy cycle of the frame*, column 5, lines 22-28). Hasley discloses a port sequentially applying the digits of its assigned port priority number to arbitration line for contending to data bus access and at the end of the contention process "send enable" signal is sent over (*the port attempting to*

transmit to the busy port repeating bidding until the message is sent, column 4,

lines 49-60).

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

- US Patent (4375639) to Johnson, Jr discloses synchronous bus arbiter

- US Patent (4488218) to Grimes discloses dynamic priority queue occupancy

   scheme for access to a demand-shared bus

- US Patent (4631534) to Franklin et al discloses distributed packet switching

   system

- US Patent (6629178) to Smith discloses system and method for controlling

   bus access for bus agents having varying priorities

8   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hong Cho whose telephone number is 571-272-

3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-

3088.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR

only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hong Cho
Patent Examiner
10-14-2004

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